REMARKS

Claims 1-8 and 10-64 remain in the application for consideration. In view of the following remarks, Applicant respectfully requests withdrawal of the rejections and forwarding of the application onto issuance.

§ 103 Rejections

Claims 1, 24-26, 37-39, 48, 54-56, 57, 58-59, and 62-64 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,581,062 to Draper et al. (hereinafter "Draper") in view of U.S. Patent No. 6,466,918 to Spiegel et al. (hereinafter "Spiegel").

Claims 2-19, 27-28, 30-31 and 40-43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Draper in view of Spiegel and further in view of U.S. Patent No. 5,285,261 to Simonetti et al. (hereinafter "Simonetti").

Claims 20-23, 29, 32-36, 44-47, and 50-53 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Draper in view of Spiegel and further in view of U.S. Patent No. U.S. Patent No. 6,151,601 to Papierniak et al. (hereinafter "Papierniak").

Before discussing the substance of the Office's rejections, the following discussion of Applicant's disclosure as well as the references to Draper and Spiegel is provided in an attempt to assist the Office in appreciating the patentable distinctions between Applicant's claimed subject matter and the cited references.

Applicant's Disclosure

Applicant's disclosure describes hierarchical tree structures that uniquely identify ***geographical divisions*** of the Earth and/or physical or logical entities.

Each tree has multiple nodes and at least one node from each tree is ***linked***. In accordance with some embodiments, goods and services can be associated with individual nodes on the tree and the nodes provide a universal reference when attempting to locate or consume the goods or services.

In at least some embodiments, a ***Master World is a hierarchical tree structure of nodes that represents a universally acceptable description of the world***. Each node represents some aspect of the world and is connected to at least one other node by a branch. An exemplary classification of nodes takes place on a physical level (e.g. physical locations such as political entities, infrastructure entities and public places), as well as a non-physical level (e.g. military APOs). Each node of the Master World has various attributes associated with it that assist in context-aware computing. Exemplary attributes include a unique ID, name, geographic entity class, latitude/longitude, relative importance, contextual parents to name just a few. The Master World is useful because it can be used to determine the relative location of a place anywhere in the world and at any definable granularity.

Once an individual's location or a place an individual is interested in is determined, various services that reference the location can be offered to the individual based on their location. That is, value is provided by the Master World model in the ability to tie services to nodal locations in the Master World.

In at least some embodiments, ***a Secondary World is also a hierarchical tree structure of nodes***. A Secondary World is a powerful computing mechanism whereby individual entities (such as businesses or organizations) can define their own particular worlds that need not necessarily conform to the Master World view of the world. That is, while the Master World is essentially a physical hierarchical

representation of the world, the Secondary Worlds can be physical and/or logical representations of each individual entities' world view. ***One particularly useful aspect of the Secondary World is that it links, at least one point, into the Master World.*** Thus, within any Secondary World, a user's location not only within the Secondary World, but the Master World as well can be determined. Various services can be attached to the nodes of the Secondary World. Based upon a user's calculated position, these various services that are associated with Secondary World nodes can be offered to the user. In addition, because the user's context is determined relative to the Master World, other services that may not be associated with a particular Secondary World can be offered.

A useful aspect of the Master and Secondary Worlds are that they are "reachable". from various computing devices such as stationary (i.e. desktop devices) or mobile computing devices (i.e. cell phones, laptops etc.). That is, the Master World (or at least a portion of it) and one or more Secondary Worlds can be either locally maintained on the computing device, or accessed, e.g. via the Web or some other mechanism, so that a user can derive their context. For example, the Secondary World can be downloaded onto the computing device so that a user can derive their context within the Secondary World. Once a user's context is determined from the Master World and one or more Secondary Worlds, a various robust collection of context-aware solutions become available to the user. For example, specific Secondary World services can be offered or Master World services can be offered. Additionally, services from other Secondary Worlds might also be offered since the user's location may be known (or made known) to these other Secondary Worlds. ***In this way, the Master World can link two or more Secondary Worlds together.***

The Draper Reference

Draper discloses a system for the storage of semi-structured data. Draper instructs that "semi-structured data" refers to data that has structure, but where the contents of particular structural elements need not be consistent. To facilitate this characteristic, data are "self-describing". For example, in a "person" application, a person can be validly defined by semi-structured data with only a subset of all possible data associated with a person, e.g., by only a last name and a telephone number, or a first name, last name, and address, or some other combinations. Or, a person may be defined with additional data not previously seen, such as an employer name, an employer address, and an employer telephone number. Thus, each semi-structured "person" definition may vary.

Draper further instructs that "structured data", in contrast, refers to data formats such as those used for databases, spreadsheets, address books, and so forth, where in each case, the data format is well-defined by a schema and essentially inflexible. For example, in the database context, a database can be defined to store data according to some data-storage requirements. The storage requirements, e.g., the schema or nature of valid input, are known in advance, and the database is defined according to the structure of the potential input data. If the database were storing information about person, such as first name, last name, address, telephone number, and employer, every person record in the database would have space allocated for the information being tracked. Hence, the database is structured.

One significant issue, according to Draper, is how to convert from semi-structured data, such as XML encoded data, to structured data storage, such as a

SQL database. A significant limitation of current conversion approaches, according to Draper, is that mapping between structured and semi-structured data formats is by way of applying a fixed set of "rules" to perform the mapping. That is, in past techniques, one and only one mapping is possible. For a given semi-structured input, the conversion rules control conversion into corresponding structured database output. The conversion is not flexible. Thus, Draper discloses a more flexible approach to handling semi-structured data in a structured manner is desired.

Draper discloses a mapper that generates a structured organization to store a collection of semi-structured data. Collaterally, the mapper also generates a description of how the semi-structured data are stored under the structured organization. The mapper generates a semi-structured data organization for a collection of structured data. In like manner, the mapper also collaterally generates a description of correspondence between the semi-structured data organization and the structured data.

The Spiegel Reference

Spiegel discloses a method for identifying popular nodes within a browse tree or other hierarchical browse structure based on historical actions of online users, and for calling such nodes to the attention of users during navigation of the browse tree.

Spiegel instructs that merchants set up Web sites for marketing and selling products and services. According to Spiegel, many online merchants and other businesses group their products, services or other items into a set of categories and subcategories of a browse tree. For example, the Yahoo Web site

(www.yahoo.com) includes a browse tree which acts as a general Web directory, the Ebay Web site (ebay.com) includes a browse tree for locating auction-related content (auction events, etc.), and the Amazon.com Web site includes a subject-based browse tree for locating book titles.

According to Spiegel, one problem commonly encountered by online merchants is the inability to effectively present their goods and services to consumers via their browse trees. Due to the large number of items and item categories, many "popular" categories and items (those that have experienced significant user activity) remain hidden from the user. For example, when a user begins navigation of a typical browse tree for locating books, the user initially sees a list of categories that broadly describe different book subjects. At this point, the user normally would not see more specific categories such as "Olympics," even though "Olympics" may be the most popular category at that time. The "Olympics" category may be nested within the browse tree under Books/Sports & Outdoors/Events/Olympics, requiring the user to navigate downward through multiple levels of the tree to find the category. Similarly, the user would not see the most popular books (e.g., the current bestsellers) because they too would be nested within the browse tree (typically at the lowest level). Further, once the user locates the popular categories and book titles, the user typically has no reason to believe that they are currently the most popular. The ability for users to identify the most popular items and categories helps the users locate items that have gained acceptance within a community or within the population at large.

Spiegel provides a method for automatically identifying the most "popular" nodes (categories and/or items) within a browse tree or other hierarchical browse structure, and for calling such nodes to the attention of users during navigation of

the browse structure. The system and method can be used for assisting users in locating popular products (e.g., books) and/or product categories within a catalog of an online merchant.

The Claims

Claim 1 recites a system for determining context comprising [emphasis added]:

- one or more computer-readable media; and
- a hierarchical tree structure resident on the media and comprising multiple nodes ***each of which represent geographical divisions of the Earth***, individual nodes comprising an entity identification (EID) that is unique to the node, EIDs serving as a basis by which attributes can be assigned to goods or services associated with an individual node, said multiple nodes comprising parent and children nodes, at least some of the parent nodes and their associated children nodes having EIDs that are unique for the associated node.

In making out a rejection of this claim, the Office argues that the claim is obvious over Draper in view of Spiegel. The Office states that Draper teaches one or more computer-readable media and a hierarchical tree structure resident on the media and comprising multiple nodes each of which represent geographical divisions of the Earth (locations such as name, home, address, state, zip, city) (citing column 5, lines 38-55 and referring to figure 6a and 6b).

Draper does not disclose or suggest a hierarchical tree structure resident on the media and comprising multiple nodes ***each of which represent geographical divisions of the Earth.*** Figure 6b of Draper, which is cited by the Office as disclosing this subject matter, shows a tree with the following node names:

Directory, Person, Name, Home, Work, Phone, First, Address, State, Last, Line1, City, Zip. Clearly, at least some of these nodes **do not** represent a geographical division of the Earth. For example, a ***person*** is not a geographical division of the Earth. As such, the Draper reference does not disclose a hierarchical tree structure comprising multiple nodes each of which represent geographical divisions of the earth. To this extent, Spiegel adds nothing of significance.

Accordingly, for at least this reason, this claim is allowable.

Claims 2-8, and 10-23 depend from claim 1 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 1, are neither disclosed nor suggested in the references cited and applied by the Office.

Claim 24 recites a system for determining context comprising [emphasis added]:

- one or more computer-readable media;
- a first hierarchical tree structure having multiple nodes associated with a first context;
- ***at least one second hierarchical tree structure having multiple nodes associated with a second context***; and
- at least one node from the at least one second hierarchical tree structure being linked with one node on the first hierarchical tree structure by a link that is configured to enable a complete context to be derived from the first and second contexts, individual nodes having unique IDs that can serve as a basis by which attributes can be assigned to goods or services, said multiple nodes comprising parent and children nodes, at least some of the parent nodes and their associated children nodes having IDs that are unique for the associated node.

In making out a rejection of this claim, the Office argues that the claim is obvious over Draper in view of Spiegel. The Office first states that Draper teaches

a first hierarchical tree structure having multiple nodes associated with a first context. In making this argument, the Office argues that figure 6b of Draper shows the first hierarchical tree structure and includes the nodes Directory and Person. The Office then argues that Draper also discloses at least one second hierarchical tree structure having multiple nodes associated with a second context. In making this argument, the Office argues that figure 6b of Draper also shows a second hierarchical tree structure that includes the nodes Person and its children nodes such as Name, Home, and Work.

Applicant respectfully submits that figure 6b of Draper does not disclose or in any way suggest at least one second hierarchical tree structure having multiple nodes associated with a second context. Figure 6b of Draper discloses ***one tree***, called "tree structure 60" (see Column 5, lines 49-55 which refers to figure 6b of Draper). The Office has misconstrued this reference.

Furthermore, in making out the rejection of this claim, the Office has mistakenly identified the "Directory" and "Person" nodes of figure 6b as constituting one tree. Draper clearly discloses that the "Directory" node is actually the ***root node*** of tree structure 60. (*see* Column 5, Lines 49-50). There is only one tree shown in figure 6b and not, as the Office suggests a first hierarchical tree structure and at least one second hierarchical tree structure. As such, Draper does not disclose the subject that the Office argues it does and the Office has not made out a *prima facie* case of obviousness. That is, to the extent Draper does not disclose the subject matter that the Office argues it does, Spiegel adds nothing of significance.

Accordingly, for at least this reason, the Applicant respectfully submits that this claim is allowable.

Claims 25-36 depend from claim 24 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 24, are neither disclosed nor suggested in the references cited and applied by the Office.

Claim 37 recites a computer-implemented method of determining context comprising [emphasis added]:

- ***accessing first and one or more second hierarchical tree structures that are resident on one or more computer-readable media***, each tree structure having multiple nodes, the nodes of the first hierarchical tree structure being associated with a first context, the nodes of the one or more second hierarchical tree structures being associated with a second context; and
- traversing multiple nodes of at least one of the tree structures to derive a context, individual nodes having unique IDs that can serve as a basis by which attributes can be assigned to goods or services, said multiple nodes comprising parent and children nodes, at least some of the parent nodes and their associated children nodes having IDs that are unique for the associated node.

In making out the rejection of this claim, the Office relies on Draper and Spiegel, as disclosing one or more second hierarchical tree structures, in the same way as discussed in claim 24. For the same reasons as discussed in claim 24, the Applicant respectfully submits that figure 6b of Draper does not disclose one or more second hierarchical tree structures. To this extent, Spiegel adds nothing of significance.

Accordingly, for at least this reason, this claim is allowable.

Claims 38-47 depend from claim 37 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited

features which, in combination with those recited in claim 37, are neither disclosed nor suggested in the references cited and applied by the Office.

Claim 48 recites one or more computer-readable media having computer-readable instructions thereon which, when executed by a computing device, cause the computing device to [emphasis added]:

- access first and ***second hierarchical tree structures,*** each tree structure having multiple nodes, the nodes of the first hierarchical tree structure being associated with a first location context, the nodes of the ***second hierarchical tree structure*** being associated with a second location context, at least one node of the ***second hierarchical tree structure*** being linked with a node of the first hierarchical tree structure; and
- traverse at least one node of each tree structure to derive a location context, at least one node in a traversal path that leads to a root node of the ***second hierarchical tree structure*** being linked with a node of the first hierarchical tree structure, individual nodes having unique IDs that can serve as a basis by which attributes can be assigned to goods or services, said multiple nodes comprising parent and children nodes, at least some of the parent nodes and their associated children nodes having IDs that are unique for the associated node.

In making out the rejection of this claim, the Office relies on Draper and Spiegel, as disclosing a second hierarchical tree structure, in the same way as discussed in claim 24. For the same reasons as discussed in claim 24, the Applicant respectfully submits that figure 6b of Draper does not disclose a second hierarchical tree structure. To this extent, Spiegel adds nothing of significance.

Accordingly, for at least this reason, this claim is allowable.

Claims 49-53 depend from claim 48 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited

features which, in combination with those recited in claim 48, are neither disclosed nor suggested in the references cited and applied by the Office.

Claim 54 recites a computer-implemented method of locating goods or services comprising [emphasis added]:

- defining a hierarchical tree structure comprising multiple nodes that each can define a physical or logical entity, said multiple nodes comprising parent and children nodes, at least some of the parent nodes and their associated children nodes ***having IDs that are unique for the associated node;***
- ***associating one or more goods or services with one or more of the nodes; and***
- ***traversing one or more of the multiple nodes to discover a good or service.***

In making out a rejection of this claim, the Office argues that Draper discloses all of the recited features except for having Ids that are unique for the associated node; associating one or more goods or services with one or more of the nodes; and traversing one or more of the multiple nodes to discover a good or service. For this feature, the Office relies on Spiegel and argues that its combination with Draper would render the subject matter obvious. As a motivation for making this combination, the Office argues that the motivation would be to improve the tree structure without the need to generate and store a search table for each search value.

Applicant respectfully disagrees with the Office's combination and its stated motivation to combine these references. As such, Applicant respectfully submits that the Office has failed to establish a *prima facie* case of obviousness.

Consider, for example, the nature of Draper's disclosure as noted above. Specifically, Draper teaches a system for converting from semi-structured data, such as XML encoded data, to structured data storage, such as a SQL database. The Office argues that it would be obvious to employ Spiegel's system in Draper's system to incorporate the use of a context tree where nodes in the context tree are assigned to goods or services.

Applicant respectfully submits that Draper's system has no need whatsoever for associating goods or services with nodes on a semi-structured data tree. Draper is only concerned with taking semi-structured data and converting it into structured data. Accordingly, the Office's combination of these references does not logically make sense.

Furthermore, the Applicant fails to understand the Office's stated motivation for combining Spiegel with Draper. The Applicant fails to see how associating one or more goods or services with a node on Draper's semi-structured data tree would improve the tree structure without the need to generate and store search table for each search value.

Accordingly, for at least these reasons, the Office has failed to establish a *prima facie* case of obviousness, and the claim is allowable.

Claims 55-56 depend from claim 54 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 54, are neither disclosed nor suggested in the references cited and applied by the Office.

Claim 57 recites one or more computer-readable having computer-readable instructions thereon which, when executed by a computing device, cause the computing device to [emphasis added]:

- define a hierarchical tree structure comprising multiple nodes that each can define a physical or logical entity, said multiple nodes comprising parent and children nodes, at least some of the parent nodes and their associated children nodes ***having IDs that are unique for the associated node;***
- ***associate one or more goods or services with one or more of the nodes; and***
- ***traverse one or more of the multiple nodes to discover a good or service.***

With regard to the subject matter that has been incorporated into this claim, the Office has failed to establish a *prima facie* case of obviousness, as noted in claim 54 above. Accordingly, this claim is allowable.

Claim 58 recites a computer-implemented method of building context-aware data structures comprising [emphasis added]:

- receiving input from a source that specifies information pertaining to physical and/or logical entities;
- processing the information to define a hierarchical tree structure having a context, the tree structure comprising multiple nodes each of which represent a separate physical or logical entity, said multiple nodes comprising parent and children nodes, at least some of the parent nodes and their associated children nodes having IDs that are unique for the associated node;
- ***linking at least one of the multiple nodes to a node of another tree structure*** having a context and multiple nodes that represent physical and/or logical entities, individual nodes having unique IDs that can serve as a basis by which attributes can be assigned to goods or services,
- the tree structures being configured for traversal in a manner that enables context to be derived from one or more of the nodes.

In making out the rejection of this claim, the Office relies on Draper and Spiegel, as disclosing a second hierarchical tree structure, in the same way as

discussed in claim 24. For the same reasons as discussed in claim 24, the Applicant respectfully submits that figure 6b of Draper does not disclose a second hierarchical tree structure. To this extent, Spiegel adds nothing of significance.

Accordingly, for at least this reason, this claim is allowable.

Claims 59-60 depend from claim 58 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 58, are neither disclosed nor suggested in the references cited and applied by the Office

Claim 61 recites a system for determining context comprising [emphasis added]:

- one or more computer-readable media; and
- a hierarchical tree structure resident on the media and comprising multiple nodes ***each of which represent geographical divisions of the Earth***, individual nodes comprising an entity identification (EID) that is unique to the node, EIDs serving as a basis by which attributes can be assigned to goods or services associated with an individual node, said multiple nodes comprising parent and children nodes, at least some of the parent nodes and their associated children nodes having EIDs that are unique for the associated node;
- wherein at least some of the nodes comprise a node selected from a group of nodes comprising: political entities, natural entities, infrastructure entities, and public places.

In making out the rejection of this claim, the Office relies on Draper and Spiegel, as disclosing a hierarchical tree structure comprising multiple nodes each of which represent geographical divisions of the earth. For the same reasons as discussed in claim 1, the Applicant respectfully submits that figure 6b of Draper does not disclose or suggest a hierarchical tree structure resident on the media and

comprising multiple nodes ***each of which represent geographical divisions of the Earth.*** To this extent, Spiegel adds nothing of significance.

Accordingly, for at least this reason, this claim is allowable.

Claim 62 recites a system for determining context comprising [emphasis added]:

- one or more computer-readable media;
- a first hierarchical tree structure having multiple nodes associated with a first context;
- ***at least one second hierarchical tree structure having multiple nodes associated with a second context;*** and
- at least one node from the at least one second hierarchical tree structure being linked with one node on the first hierarchical tree structure by a link that is configured to enable a complete context to be derived from the first and second contexts, individual nodes having unique IDs that can serve as a basis by which attributes can be assigned to goods or services, said multiple nodes comprising parent and children nodes, at least some of the parent nodes and their associated children nodes having IDs that are unique for the associated node;
- wherein the nodes of the first hierarchical tree structure comprise geographical divisions of the Earth;
- wherein the first and the at least one second hierarchical tree structures comprise a plurality of attributes, one of which comprising information that pertains to the tree with which the node is associated.

In making out the rejection of this claim, the Office relies on Draper and Spiegel, as disclosing a second hierarchical tree structure, in the same way as discussed in claim 24. For the same reasons as discussed in claim 24, the Applicant respectfully submits that figure 6b of Draper does not disclose a second hierarchical tree structure. To this extent, Spiegel adds nothing of significance.

Accordingly, for at least this reason, this claim is allowable.

Claim 63 recites a computer-implemented method of determining context comprising [emphasis added]:

- accessing first ***and one or more second hierarchical tree structures*** that are resident on one or more computer-readable media, each tree structure having multiple nodes, the nodes of the first hierarchical tree structure being associated with a first context, the nodes of the one or more second hierarchical tree structures being associated with a second context; and
- traversing multiple nodes of at least one of the tree structures to derive a context, individual nodes having unique IDs that can serve as a basis by which attributes can be assigned to goods or services, said multiple nodes comprising parent and children nodes, at least some of the parent nodes and their associated children nodes having IDs that are unique for the associated node;
- wherein the nodes of the first hierarchical tree comprise geographical divisions of the Earth; and
- wherein the traversing comprises traversing at least one node on each tree to derive the context.

In making out the rejection of this claim, the Office relies on Draper and Spiegel, as disclosing a second hierarchical tree structure, in the same way as discussed in claim 24. For the same reasons as discussed in claim 24, the Applicant respectfully submits that figure 6b of Draper does not disclose a second hierarchical tree structure. To this extent, Spiegel adds nothing of significance.

Accordingly, for at least this reason, this claim is allowable.

Claim 64 recites one or more computer-readable media having computer-readable instructions thereon which, when executed by a handheld, mobile computing device, cause the computing device to [emphasis added]:

- access first ***and second hierarchical tree structures***, each tree structure having multiple nodes, the nodes of the first hierarchical

tree structure being associated with a first location context, the nodes of ***the second hierarchical tree structure*** being associated with a second location context, at least one node of the second hierarchical tree structure being linked with a node of the first hierarchical tree structure; and

- traverse at least one node of each tree structure to derive a location context, at least one node in a traversal path that leads to a root node of the second hierarchical tree structure being linked with a node of the first hierarchical tree structure, individual nodes having unique IDs that can serve as a basis by which attributes can be assigned to goods or services, said multiple nodes comprising parent and children nodes, at least some of the parent nodes and their associated children nodes having IDs that are unique for the associated node

In making out the rejection of this claim, the Office relies on Draper and Spiegel, as disclosing a second hierarchical tree structure, in the same way as discussed in claim 24. For the same reasons as discussed in claim 24, the Applicant respectfully submits that figure 6b of Draper does not disclose a second hierarchical tree structure. To this extent, Spiegel adds nothing of significance.

Accordingly, for at least this reason, this claim is allowable.

Conclusion

The Office has issued a number of office actions in the present application. Each time, Applicant has addressed and traversed the Office's rejections. By the time this response is filed, this application will have been pending more than five years. Applicant has sincerely and earnestly prosecuted this application and now respectfully requests that the Office pass the application to issuance.

In the event the next action by the Office is anything other than issuance of a Notice of Allowability, Applicant respectfully requests a telephone call for the purpose of discussing an Appeal.

Respectfully Submitted,

Dated: 7/21/05

By: _____

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